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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 14

Application Number: 08/840,947
Filing Date: April 21, 1997
Appellant(s): Edward W. Liu

Joseph G. Swan
For Appellant

EXAMINER'S ANSWER

This is in response to appellants' brief on appeal filed 6/28/1999

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-18 and 20-29 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,546,458 Iwami August 13, 1996

(10) New Prior Art

No new prior art has been applied in this examiner's answer.

(11) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-7, 9-16, 20-22 and 24-29 remain rejected under 35 USC 102 (b) as being anticipated by Iwami (US Pat. 5,546,458).

With regard to claim 1, the Iwami reference discloses in Figures 1-2 and 4 a noise canceller circuit comprising:

- a first circuit (38, 38a, 38b).

- a second circuit (40, 40a, 40b).

- a substractor or a third circuit (36).

- a digital circuit (16) or other digital circuit within the wireless telephone set (11) located proximately to the first circuit and the second circuit (Figure 1).

- a plurality of analog circuits (54, 56, 58, 60, Figure 4), noise separator circuits (62, 64) and a noise canceling circuit (66).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 8, 17-18 and 23 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Iwami (US Pat. 5,546,458).

Iwami discloses in Figures 1-2 a noise canceller circuit with all of the limitations of the present invention but does not disclose that the substractor circuit comprises a halving circuit for reducing a signal by one-half of its magnitude as called for in claim 3. However, employing a substractor comprising a halving circuit for further reducing an output signal is notoriously well known in the art (as disclosed on lines 22-25

of page 6 of the specification of the present invention). Thus, employing a substractor having a halving circuit for reducing a signal by one-half of its magnitude in the Iwami circuit is considered to be a design expedient for an engineer dependent upon a particular environment and the application in which the noise canceller of Iwami is to be used. A skilled artisan would be motivated to employ the substractor having a halving circuit in the Iwami circuit for the purpose of further reducing the magnitude of the output signal. Also, employing a d igital substrator comprising an adder for substracting two signals is notoriuos ly well known in the art.

(12) New Ground of Rejection

This examiner's answer does not contain any new ground of rejection.

(13) Response to argument

The appellant argues that the second amplifier (40) of Iwami as shown in Figure 2 is not located proximal to the first amplifier (38) (see page 12, lines 10-11); and the amplifiers (38, 40) have output noise components, resulting from noise experienced by the circuits, that are approximately equal (see page 12, lines 1-9). The arguments have been carefully considered but are not persuasive because Figure 2 of the Iwami reference shows that the second amplifier (40) is near the first amplifier (38) within the box (32) and column 5, lines 21-26, discloses that all of the amplifiers within the box 50 in Figure 4 are the same type of amplifier. Also, the existence of the substractor (36) which combines the outputs of the amplifiers (38, 40) for performing the noise canceling function would clearly indicate that the amplifiers (38, 40) should have identical structure. Since the structure of the amplifiers (38, 40) are identical and they are

proximately located, the amplifiers (38, 40) would experience the same interference noise or electromagnetic environment noise generated within the system and internal noise generated by components of the amplifiers.

The appellant argues at page 13, lines 1-9 of the appeal brief that the control section (16) of Iwami is not a digital circuit and is not located on the same integrated chip. This argument is also not persuasive because the control section (16) and the noise canceller (44) in Figure 3 of Iwami are arranged in the same box (44) so that they are inherently constructed in the same integrated circuit or in the same circuit board. Also, column 1, lines 14-15 of the Iwami reference discloses that the circuit of Iwami is used in the wireless telephone set which is available in digital technology, e.g., a cellular phone. Therefore, the control circuit of Iwami is inherently a digital circuit.

The appellant argues at page 13, lines 17-24 of the appeal brief that Iwami does not show that the noise components resulting from electromagnetic environment noise experienced by these input amplifiers are approximately equal. The argument is not persuasive. Since the noise contributed to the amplifier comprises internal noise generated by the components of the amplifier and the electromagnetic environment noise generated by other components within the system, and since the first amplifier (38) of Iwami is near the second amplifier (40), both transistors would experience the same magnitude electromagnetic environment noise.

The appellant argues at page 18, lines 16-24 of the appeal brief that Iwami does not show a plurality of analog circuits, a noise separator circuit and a noise canceling circuit. The argument is not persuasive because the recited "plurality of analog circuits", "noise separator circuit" and "noise

canceling circuit" are anticipated, respectively, by the "amplifiers (54, 56, 58, 60)", the "amplifier (62, 64)" and the "amplifier (66)" as shown in Figure 4 of the Iwami reference.

The appellant argues at page 22, lines 6-11 of the appeal brief that there is no motivation for employing the substractor having a halving circuit in the Iwami circuit for further reducing the magnitude of the output signal. This argument has been carefully considered but is also not persuasive because the examiner recognizes that obviousness is established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Iwami reference discloses in Figure 2 a noise canceller circuit comprising the substractor (36) for subtracting the output of the first amplifier (38) from the output of the second amplifier (40) but does not disclose that the substractor (36) comprises a halving circuit for further reducing the output signal to one-half. Further the appellant's admitted prior art suggests at page 6, lines 22-25, using a substractor including a halving circuit for further reducing the signal to one-half. Thus, employing a substractor including a halving circuit suggested by the admitted prior art in the circuit of Iwami for the purpose of further reducing the output signal to one-half would have been obvious to a person having ordinary skill in the art.

14) Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

DINH LE
Primary Examiner
Art Unit: 2816

August 10, 1999